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FISH RESOURCES OF KAZAKH SSR

N.A. [illegible]

There are many basins in Kazakh SSR suitable for developing fishing industries. The outstanding are the salt-water lakes Aral and Balkhash, and less important, lakes Zaysan-Nor and Ala-Kul'. Altogether there are about 160 lakes and rivers in Kazakh SSR where fishing is actively carried on or could be developed.

Fishing developed rapidly on the Aral Sea after the construction of the railroad to Tashkent in 1905. The basic commercial fish of the Aral Sea during the past century was a small sturgeon, but with the opening of rail communications the take of smaller types of fish such as bream, carp and aral roach has been widely developed.

There are 26 different types of fish in the Aral Sea. Those that have commercial value are the bream, roach, sheat-fish, barbel, pike, pike perch and perch, sturgeon, alburnus chalcoides, aspius, pelecus cultratus, abramis sapa and skardinius erythrophtalmus (the last 5 belonging to the carp family).

The major part of the catch, 76 percent, consists of the first three types of fish and 24 percent, of all other types of fish. In recent years the restrictions have been lifted against fishing of alburnus chalcoides in the vicinity of Vozrozhdeniye Island and the production of this type of fish has correspondingly increased. The sturgeon reserves were diminished through uncontrolled exploitation and diseases, for which reason in 1937 a law was passed prohibiting their fishing. The sturgeon now appears only rarely in the catches. Biostatical data on fish caught in the Aral sea show that the fishing industry apparently is not sufficiently developed. The older generations predominated among the fish caught, although the average age of the fish is consistent. Bream 5 and 6 years old, carp 5 and 6 years old and roach 4 and 5 years old have predominated for some time.

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The commercially important fish of the Aral Sea grow more slowly than similar types of fish in the Caspian and Azov seas. All this indicates that commercially valuable fish of the Aral Sea are not being fully exploited. According to data obtained by a commercial survey concetrations of bream were observed at depths of 3.5 to 7 meters in September and October, but there had been no fishing in the areas. At the same time fishing was carried on near the shores where concentrations were small.

Among the fish of which the reserves have hardly been touched are the alburnus chalcoides and the abramis sapa. In the fall, when the alburnus chalcoides is very fat and well-fed, it is little fished.

There is obviously no doubt about the possibility of increasing the catches of several commercially valuable fish in the Aral Sea. But as unfavorable conditions in bream and carp spawning have been observed in recent years, it is also advisable that measures be taken to assist the reproduction of these fish reserves.

Nine types of fish live in Lake Balkhash: the carp, Balkhash marinka (schizothorax), Iliysk marinka, perch, goby, minnow, barbel, dace and small sturgeon. Of these only three types have commercial importance: the carp, perch and marinka. These fish are unevenly distributed throughout the basin. The carp are found in large concentrations in the shallow western parts of the lake and the marinka in the eastern parts of the lake.

Prior to the beginning of this century the fishing industry on Lake Balkhash had an exclusively consumer character. Fishing on a large scale only began in 1929 under the Soviet regime.

Of the total fish caught during the past 10 years, 60.5-78.4 percent have been carp, 19 percent perch, and 12 percent marinka.

The goby is dispersed widely over the lake. In April and May goby approaches the shores for spawning and could be easily caught, but so far this has not been done.

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Experimental fishing in 1942 by Vniorkh (Russian: Всесоюзный научно-исследовательский институт морского рыбного хозяйства и океанографии — All-Union Scientific Research Institute of Marine Fisheries and Oceanography) in the bay of Bertys gave during one night 20 kilograms of goby per seine (mesh 20-22 mm). The goby is almost the equal of the carp in food value. If the goby were fully exploited, more food resources would be released for the more valuable carp.

The fishing industry seemingly has not reached its limit in Lake Balkhash nor in the Aral Sea. This is indicated by comparatively stable catches from a narrow strip of water near the shore, and from the results of a biological analysis of the catches. The carp catches are 75 percent to 80 percent, fish from 4 to 6 years old, with a considerable mixture of fish up to 2 years of age.

Professor V.V. Petrov points out, that the Balkhash carp is distinguished by a slow rate of growth. However, there is a family of carp known as the "humpbacks" which has a high specific reproductivity. Concentrated fishing of this group will not serve as a detriment to increasingly large catches of carp in the coming years.

Prof. V.V. Petrov and the Balkhash section of the Vniorkh believe that along with an increase in catches of carp, it is possible to increase the catches of perch and marinka. The decrease in fishing of marinka noticed in recent years has been due to poor use of fishing facilities in the eastern part of the lake where the marinka predominates, and also to the curtailment of net fishing.

Zaysan-Nor Lake is located in the Zaysan valley. The lake has an elongated shape lying southwest to [redacted] northeast. The Chernyy Irtysh River falls into the southeastern part of the lake. The Bystryy Irtysh River flows out of the northwestern part. Thus, Zaysan-Nor Lake represents a widened part of the Irtysh River bed.

In Zaysan Lake are found 19 types of fish. 10 or 11 types have commercial value. According to data for 1936 to 1940, pike represents 42.1 percent, perch 25.7 percent, roach 14 percent, ide 11.9 percent, perch pike 3.3 percent, tench 1.2 percent, stenodus leucichtys nelma

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(salmon) 0.6 percent, sturgeon 0.02 percent and all others 0.4 percent.

Fish found in Zaysan Lake having no commercial value at present are the burbot, thyllamus grayling, char, sterlet, umber grayling, gudgeon, ruff and dace.

The seasonal distribution of the catch is as follows:

April-May 30%

June-August 40%

September-October 30%

The recent steady growth of catches is indicative of favorable conditions for marine life in the basin. The predatory pike and perch predominate in the catches. The size of the catches of peaceful fish (ide, roach and perch pike) depend directly on the reserves of predatory fish.

There is no fishing at present on approximately 150,000 of 178,000 hectares of the lake water area. There is no fishing in the deeper parts of the lake or far out from shore where a commercially valuable large perch could be caught. The western sections where spawning concentrations have been observed is inadequately exploited. There is no fishing at Kly Bay. Fishing is poorly developed in the bottom lands of the Chernyy Irtysh, ~~consisting of~~ which contain a large number of lakes and streams. The fishing there is of a purely seasonal character, conducted only in April, May and December. During the rest of the year there is no activity.

Fishing on Zaysan Lake should be developed over a larger area and on a basis of equalized exploitation of fish reserves.

The Alakul' lakes system consists of four basins: Ala-Kul', Sasyk-Kul', Kashkara and Uyaly. The largest of them are Ala-Kul' Lake (208,435 hectares) and Sasyk-Kul' Lake (46,908 hectares).

Alakul' Lake's ichthyofauna is limited to a few species. Fishing here is poorly developed and largely restricted to marinka, perch, carp and goby. Only the northern part of the lake is exploited, that is the lower areas near the estuaries of the Urdzhark, Katyn-Su and Emel rivers, and around Urdzhark Bay. The southern and other parts of the lake are unexploited because of their remoteness from receiving points.

The fishing in Sasyk-Kul Lake is likewise inadequately developed. During the summer in the eastern part of the lake, fishing is carried on in the sections located near the Aral-Tyube fishery.

Kashkarka Lake is exploited only during the winter season.

The principal obstacle to the development of fishing on Alakul' lake system is the transportation problem. Shipping on the lakes and carrying processed products to the railroad line are very difficult.

Foremost among fish caught in the Alakul' lakes is the marinka (schizothorax carp), followed by the perch, carp and groundling. Fishing began about 1930 by the Okhotkooperatsiya (hunting cooperative).

The state of the fish reserves in the Alakul' lakes warrants an increase in fishing. As on Zaysan Lake, it is necessary in the first place to eliminate the seasonal aspect of fishing, brought on by Kolkhoz workers being busy on farm work. For ~~an instance~~ example, the summer fishing season starts ordinarily in the middle of June, that is, after the haying. By that time it is necessary to exploit the deep water fish of the Alakul lakes [rather than the more accessible earlier runs].

Apart from the basins examined there are many lakes and rivers that ~~had~~ have been little used by the fishing industry. Among them are the Ural river in West Kazakh Oblast, Lake Charkhal and many smaller lakes and rivers in which carp, bream, pike perch, pike, perch, karusis, tench and others are.

The Ili River and its system of lakes abound in fish, but the fishing industry here is far from fully developed.

In the basins of Kzyl-Orda Oblast, which include the lakes and the bottom lands of the Syr-Dar'ya River and the river itself, the principal commercial fish are the pike, carp and perch.

The Irtysh basin and the spawning lakes of Pavlodar Oblast contain pike, roach, karusis, tench and perch.

There has been some fishing in all of the above named basins, but none of significance. Other areas of Kazakh SSR demanding exploitation include the Kurgal'dzhin lakes of Akmolinsk Oblast, the largest of them being Kurgal'dzhin, Chulak-Chalkar, Kaub-Chalkar, Dzhaly-Bek, Tugali-Chalkar and

Byr-Taban. The Kurgal'dzhin lakes commercial ichthyofauna consists of perch, pike, roach, karusis, tench and ide. The Kurgal'dzhin lakes have recently been drying up. Until this condition is overcome normal fish exploitation of the lakes will not be possible.

The Kokchetav system of lakes includes Imantavskiy, Sautad-Kul', Sary-Pyl'dak and Chalkar lakes, covering an area of 13,000 hectares. They are located west of the city of Kokchetav. Imantavskiy Lake has five types of fish in commercial quantity: the perch, pike, roach, tench and ide. The other lakes have nothing but perch (95 percent of the catches). In spite of their high productivity, the reserves of the Kokchetav lakes have been insufficiently exploited.

The Borovoye group of lakes (Bol'shoye and Maloye Chebach'ye, Shchuch'ye, and Borovoye), with an area over 7,000 hectares, is located near the Borovoye health resort on the Omsk railroad. These lakes are of the deep, cold type, distinguished by a rapid turnover of water. Their commercial ichthyofauna consists of perch, roach, pike and karusis. The perch predominate in the catches (60 percent).

During recent years a strong industrial growth has been observed in the Kazakhstan. Construction of large enterprises has been organized and some of them are already in operation. The number of workers is increasing and the population of the towns and villages is growing. All this increases the need for food. Local fishing could help answer this need.

Along with the broadening of the fishing industry in the Kazakh SSR it will be necessary to introduce conservation and regulatory measures. It is also necessary to raise the biological productivity of the basins by acclimatization, piscicultural and meliorative work. In the Aral Sea, particularly, are biotopes completely uninhabited or only slightly settled by ichthyofauna. Absent in this sea are plankton-eating, pelagic fish which usually live in deep water and which have pelagic roe (herring, clupea, red mullet and other). The shore zone cardium and chironomidae mollusks are not fully utilized as fish food because there are no typical mollusk-eating fish (such as goby) living in such areas.

Numerous forms of invertebrate crayfish (Mysida, corophiidae, and cumacea isopoda) having high caloric value and being desirable food for many fish, are not present.

There are no polychaeta worms and very few types of mollusks. All this points to the necessity of colonizing the Aral Sea with new types of invertebrate and fish life. It would be useful to establish special projects for the selection of objectives for acclimatization in the Aral Sea.

The acclimatization measures should also be conducted in Lake Balkhash, Zaysan-Nor Lake and others.

The construction of large irrigational projects will undoubtedly be reflected in a lowering of the fish reserves, particularly those of the migratory type such as the Syr-Dar'ya small sturgeon and barbel, the spawning grounds of which are located above the dams which are under construction. For the reestablishment of these reserves, intensified methods in fish-breeding must be used.

The area of the rice fields will increase as a result of irrigational construction. These new areas could be used for carp (cyprinus carpio) breeding. Fish-breeding in Kazakh SSR in rice paddies has not received due development.

One of the obstacles locally is the lack of breeding pond materials. The kolkhoz and sovkhoz fish-breeding is also inadequately provided with the fish breeding materials.

We must not hesitate to undertake special meliorative work in clearing swamped lakes. Those projects could have good effect from the point of view of replenishing fish reserves.

The rich fish resources of Kazakh SSR basins justifies greater attention to the development of that republic's fishing industry.